

AMENDMENTS TO THE SPECIFICATION

- Please amend the first paragraph on page 7 to read as follows:

The values for the correction parameters may be substituted into Equations (1) and (2) to determine the inclination angles θ_x and θ_y . Thereafter, the inclination angles are included in the gravity measurement performed by gravity sensor 12, using well-known techniques. In this fashion gravity measurement device 10 is calibrated to provide accurate gravity measurements in any environment. Further accuracy could be ensured by appropriately weighting the measurements R_m . For example, gravity measurements, R_m , made at the varying angles X_m and Y_m may be weighted so that the weight given to a particular gravity measurement, R_m , is inversely proportional to the standard deviation of the gravity associated with the measurement.

- Please amend the third paragraph on page 7 to read as follows:

In one embodiment, the computer readable program stored in memory 19 would facilitate a method of calibrating gravity measurement device 10 by associating tilt information produced by gravity sensor 12 as a function of tilt information produced by the tilt meter 14 and correction parameters $k_{\mathcal{E}}$, at step 100. At step 102, tilt meter 14 produces tilt data and gravity sensor 12 produces gravity data that corresponds to the tilt data. Specifically, a plurality of gravity measurements, R_m , are made by gravity sensor 12 at pairs of tilt angles X_m and Y_m . The number of differing tilt angles X_m and Y_m at which gravity measurements are made is typically no less than five, i.e., $m = 1-5$. At step 104, the tilt data and gravity data produced at step 102 are fitted to a polynomial equation that has a plurality of initial coefficients, a , b , c , d and e , associated therewith. This fitting is performed employing a least means-squared regression. Initial coefficients, a , b , c , d and e , include information concerning correction parameters $k_{\mathcal{E}}$. At step 106, correction parameters $k_{\mathcal{E}}$ are derived as a function of initial coefficients a , b , c , d and e . At step 108, inclination angles, θ_x and θ_y , are determined based upon the correction parameters, $k_{\mathcal{E}}$. Thereafter, gravity measurement device 10 may be employed to make gravity measurements based upon the known value of inclination angles θ_x and θ_y .

AMENDMENTS TO THE DRAWINGS

- Figures 2 and 3 have been amended to respectively replace the tilt angle symbols θ_1 and θ_2 with θ_x and θ_y for consistency with the original disclosure.
- A complete new set of formal drawings including amended Figures 2 and 3 have been sent to the Official Draftsperson under separate cover.

Attachment: 1 Drawing sheet including amended figures 2 and 3.